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HAIR CURLING DEVICE

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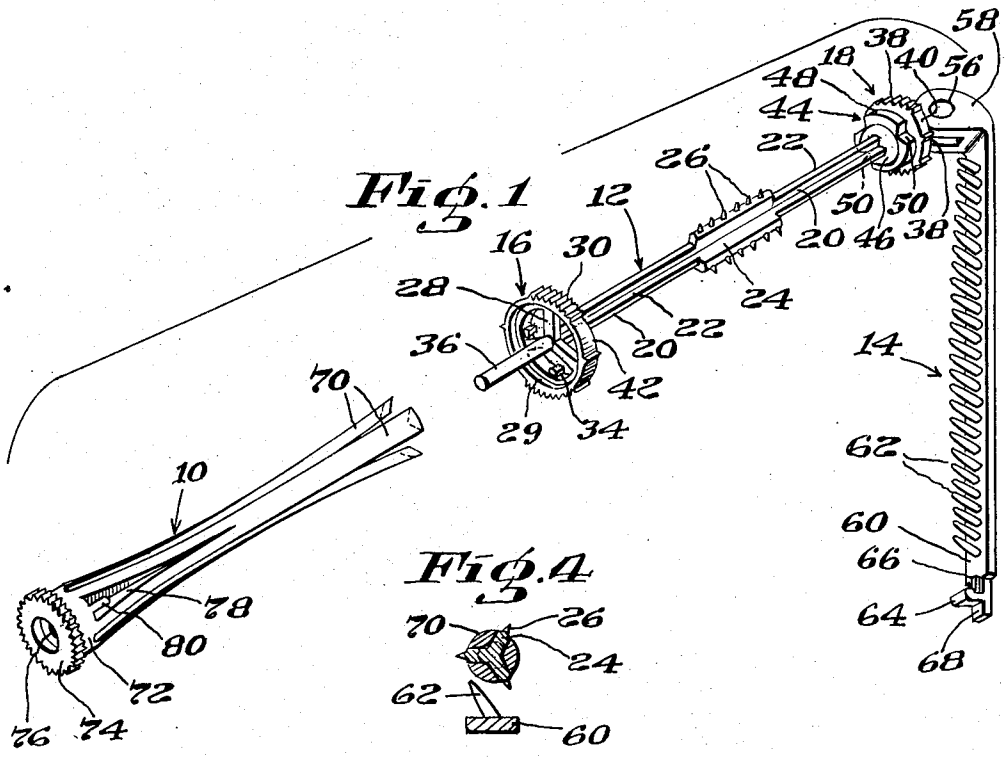


Fig. 1

Fig. 4

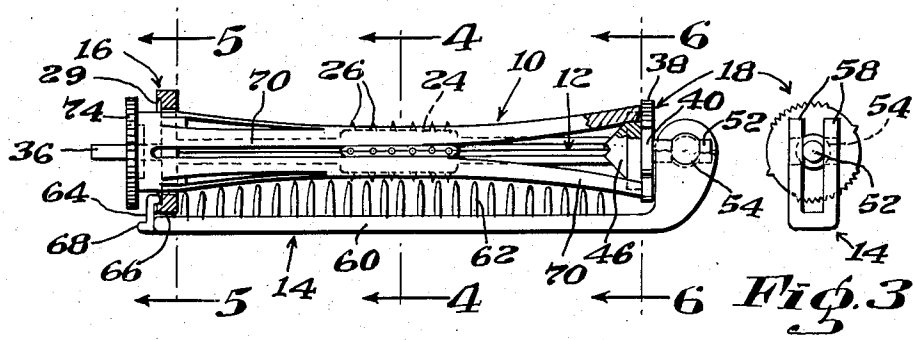


Fig. 3

Fig. 2

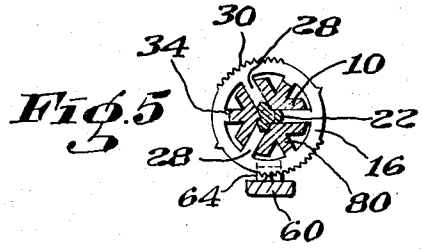


Fig. 5

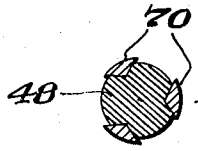


Fig. 6

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HAIR CURLING DEVICE

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7 Claims. (Cl. 132—41)

1

This invention relates to a device for curling human hair. The device is particularly adapted for use in permanent waving processes which do not require heat and as so applied is unique in that it enables simultaneous waving and styling of the hair. While useful in beauty shop practice, the device is considered especially valuable as applied in home permanent waving.

It is now conventional to "cold wave" human hair by a procedure in accordance with which the hair, before and after being wound on curling rods, is treated with a solution of an agent capable of rendering the hair plastic through reduction of the disulfide bonds in the hair keratin. The restoration of these bonds, with setting of the hair in the configuration determined by the curling rods, is normally achieved through application to the hair of a so-called "neutralizing solution," ordinarily an aqueous solution of hydrogen peroxide, sodium perborate or sodium bromate, such solution being applied in increments with intervening working periods of from 5 to 15 minutes, the last increment being applied after the hair has been unwound from the curling rods.

Recently, a process was developed differing from the conventional procedure particularly in that a neutralizing solution is not required. Such process is described in detail in the co-pending application of Alfred E. Brown, Serial No. 257,433, filed November 20, 1951. Suffice it to say at this point that in the execution of the process the hair following a predetermined period of processing with the waving solution is water-rinsed and allowed to go to substantial dryness while still wound on the curlers, the disulfide linkages being restored by simple aerial oxidation. In a variation of the process, a neutralizing solution is used but not until after substantial aerial oxidation of the hair has occurred. We have found that the curling device herein provides exceptionally good results when the hair is waved according to the Brown process, although its utility is nowise limited to such process.

A curler conforming to the present invention is distinguished, inter alia, by the inclusion of a sleeve element which embraces or surrounds the winding rod to increase the effective wrapping surface thereof. As used in the above process, the sleeve element is removed from the winding rod after the hair has been towel-blotted following the rinsing step, with the result that the hair becomes fixed or set in a relatively loose curl of relatively large diameter.

We shall particularly describe our invention

2

in terms of the embodiment thereof represented by the accompanying drawings in which:

Fig. 1 is an exploded perspective view showing the sleeve element separated from the other parts;

Fig. 2 shows the assembled curler in side elevation;

Fig. 3 is a right-hand end view of the curler as represented in Fig. 2; and

Figs. 4–6 are sections taken on the lines indicated in Fig. 2.

The curler is most suitably constructed throughout of a plastic material, as polystyrene for example. It will be observed as comprising, in addition to the sleeve element 10, a hair winding member 12 and a clasp member 14. Mediate the opposed flanges 16 and 18 integral with the body of the winding member, such member is provided with grooves 20 (Fig. 1) which delineate ribs 22. These grooves 20 provide channels facilitating the distribution of the waving solution and also the neutralizing solution, if one is used. A plurality of projections 24 extending radially outwardly of the ribs 22 centrally of the length of the winding member between the flanges 16 and 18, carry teeth or spikes 26 which grip the "end paper" used to collect the strands of hair at the beginning of the winding or curling operation.

Flange 16 of the winding member 12 has the form of a wheel including spokes 28 and carries projecting serrations 30 enabling ready gripping of the flange with the fingers in the manipulation of the winding member. The outer face of the flange is recessed to provide an annular rib 29, the purpose of which will later appear.

It is to be noted (Figs. 1 and 5) that each spoke 28 intersects with one of the ribs 22 to form a right angle. Between the spokes and extending radially inwardly of the circumference of the flange are truncated projections 34, which in the assembled curler abut complementary projections associated with the sleeve element 10. Pin 36, outward of the flange 16 and coaxial with such flange and the body of the winding member, serves a purpose to be later described.

Flange 18 in which the winding member 12 terminates at its end opposite the flange 16, and which is of lesser diameter than the latter flange, also carries projecting serrations or saw teeth 38 to enable ready gripping with the fingers, these serrations being separated by smooth areas 40, which are in alignment with the correspond-

ing areas 42 of the flange 16. A boss 44 inward of the flange 18 includes a frusto-conical portion 46 (Fig. 2) and a portion 48 having notches 50 therein, the function of which will be explained hereinafter.

A pin 52 outward of the flange 18, and coaxial with such flange and the body of the winding member 12, carries a ball 54 which is received in apertures 56 in the yoke portion 58 of the clasp member 14 (Fig. 3). This ball and socket connection enables rotational movement of either of the members 12 or 14 about an axis transverse the longitudinal axis of the member and further permits rotation of the winding member relative to the clasp member about its own axis.

In addition to the yoke portion 58, clasp member 14 comprises a comb teeth-bearing portion 60 having a length conforming substantially to that of the body of the winding member 12. The teeth 62 will be observed (Fig. 4) as forming an acute angle with the portion 60. The purpose of this angulation is both to facilitate removal of the clasp member from the mold in its manufacture and to assure proper disposition of the clasp with relation to the curvature of the head in use of the curler. The comb teeth not only aid in the securing of the curler to the hair but, by reason of the hair separation they provide, help in the proper distribution of waving and neutralizing solutions.

The clasp member 14 terminates at its end opposite the yoke portion 58 in a tang 64 which latches onto the annular rib 20 of the flange 16. An auxiliary tang 66 is adapted to seat between any two of the saw teeth 30 and thereby operates to prevent any substantial rotation of the winding member 12 relative to the clasp member once the detachable connection is made. Shoulder 68 is engaged by the thumb nail in breaking the connection.

Referring now to the sleeve member 10, the same will be seen as comprising a plurality of prongs 70, three in the particular construction. Such prongs extend from a trunk portion 72 which has integral therewith a serrated circular flange 74. An aperture 76 in the trunk portion 72 has a diameter allowing for accommodation of the pin 36 of the winding member.

Prongs 70, as they leave the trunk portion 72, first gradually converge and then gradually diverge or flare, the point of maximum convergence being midway between the ends of the prongs. The width and thickness of the prongs progressively decrease from the trunk portion 72 to their point of maximum convergence. Beyond this point the width of the prongs remains substantially uniform, but the thickness thereof continues to progressively decrease. The back of each prong between the trunk end and the point of maximum convergence of the prongs is provided with an elongated triangular depression 78 (Fig. 1) which is V-shaped in cross section. Within these depressions are projections 80 which, in the assembled curler, abut the truncated projections 34 associated with the flange 16 of the winding member 12. The outer surfaces of the projections 80, which provide a tight fit with the flange 16, represent extensions of the outer surface of the trunk portion 72.

A principal advantage of the open prong construction resides in the fact that it allows for free circulation of waving and neutralizing solutions. Also, by reason of the flexibility of the prongs, they may be readily passed in either direction through the flange 16.

In the assembled curler, the ends of the prongs 70 are received in the notches 50 of the boss 44, the dimensional relationship of the sleeve and winding member being such that the prongs abut the inner face of the flange 18. Teeth 26 carried by the projections 24 necessarily extend beyond the periphery of the sleeve in the area of these teeth. Projections 24, together with the spokes 28 on the flange 16, serve as guides for the prongs 70 and further serve to prevent rotation of the sleeve element relative to the winding member. Projections 24 are in exact alignment with the spokes.

Using curlers conforming to the invention in the practice of the previously mentioned Brown process, the hair is divided in the conventional manner into four sections—left front, right front, crown and neckline. Starting with the neckline section, a tress of the hair is parted off to the width of the curler and about one inch deep. Using cotton, the tress is thoroughly soaked with the waving lotion. An end paper is folded about the soaked tress and brought downward to cover the end of the tress. The winding member of the assembled but open curler is then placed under the end paper, which is gripped by the teeth 26. The winding member is rolled under to the scalp, the hair being spread evenly across the winding member by the fingers. When the scalp is reached, the detachable connection is made and another tress parted off for winding on another of the curlers. Ordinarily, six curlers are used for the neckline section. When this section is complete, the other sections are wound sequentially, the front sections being normally wound before the crown section. About eight curlers are used for each front section and four for the crown section. In the case of the crown section only, the direction of the winding is upward, not under. With the winding complete, each individual curl is resaturated with the waving lotion, an eye dropper sometimes being employed here in lieu of cotton. After a working period of about 30 minutes, the hair while on the curlers is thoroughly rinsed with water either by holding the head under a tap or by pouring pitchers of water through the curls. The rinsed hair is towel-blotted and the sleeves taken out to loosen the hair coils. Removal of the sleeve in any location of a curler is easily accomplished without unclasping the curler or disturbing the curl by pulling on the flange 74 with the thumb and middle finger while at the same time pushing on the pin 36 with the index finger. After the expanded hair coils have become substantially dry, the curlers are unclasped and the hair unwound therefrom. With removal of all the curlers, the operation is complete except for combing and brushing of the hair.

We claim:

1. In a hair curler having a clasp member and a winding member rotatable about its own axis relative to the clasp member, the combination of a sleeve element which in operative position overlies at least a portion of the winding member so as to increase the effective wrapping surface thereof, said element being slotted from one end thereof and being removable from the winding member with the clasp member in closed position.

2. In a hair curler having a winding member and a clasp member, the winding member being swivelly connected at one end to one end of the

clasp member, the opposed ends of said members being detachably connectable, the combination with the winding member of a plurality of centrally disposed, radially extending projections terminating in fine teeth capable of gripping an end paper, and a poly-pronged sleeve element which removably surrounds the winding member and embraces said projections while permitting exposure of the said teeth.

3. A pair of curler according to claim 2 in which the clasp member is provided with a row of comb teeth along its inner face.

4. A hair curler conforming to claim 2 in which the winding member has integral therewith a generally circular flange at each end thereof, one of said flanges being provided with spokes serving as guides for the prongs of the sleeve element, the other of said flanges being abutted by the ends of the prongs in the assembled condition of the curler.

5. In a hair curler having a winding member and a clasp member, the winding member being swivelly connected at one end to one end of said clasp member, a sleeve element overlying at least a portion of the winding member to increase the effective wrapping surface thereof, said sleeve element having at least one slot extending generally axially from one end thereof, and means for detachably connecting the opposing ends of said winding member and clasp member extending through said slot, the sleeve member being removable from the winding member when the winding member and the clasp member are detachably connected in the closed position.

6. A hair curler as defined in claim 5 in which said detachable connecting means includes an annular member surrounding an end of said winding member held in spaced relation thereto by a plurality of spokes and said sleeve member includes at least as many slots as there are spokes, each spoke extending through one of said slots.

7. A hair curler as defined in claim 6 in which the sleeve member extends substantially the full length of said winding member and progressively decreases in diameter from each end toward the center.

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